

## Description of a New Species of *Leucospis* (Insecta, Hymenoptera, Leucospidae) from the Ogasawara Islands, Japan

Hirohiko Nagase

81 Nikaido, Kamakura 248–0002, Japan

E-mail: h-nagase@msa.biglobe.ne.jp

**Abstract** A new species of leucospid wasp, *Leucospis pulcherrima* is described from Hahajima Island. This is the first record of Leucospidae from the Ogasawara Islands.

**Key words:** Chalcidoidea, *Leucospis*, new species, Ogasawara Islands, Japan.

Wasps of the genus *Leucospis* are parasitoids on the tube-renting or mud-doubling Aculeata, belonging mostly to bees of the family Megachilidae and less frequently to wasps of the family Eumenidae etc. Approximately 110 species are recorded primarily from warmer parts of the world (Boucek, 1974), out of which three species have been so far recorded from Japan (Habu, 1962, 1977; Yamagishi, 1989). In this paper, I describe a new species of the genus from the Ogasawara Islands as the fourth species of *Leucospis* from Japan. This is the first record of Leucospidae from the Ogasawara Islands.

Morphological terms generally follow Boucek (1974). Abbreviations are: T1, T2, etc. for the tergites 1, 2, etc., and S1, S2, etc. for the sternites 1, 2, etc.

All measurements are made at the same magnification of the microscope (measured figure 10 equals approximately 0.25 mm).

### *Leucospis pulcherrima* sp. nov.

[Japanese name: Beni-shiriage-kobachi]

(Figs. 1–5)

*Description of holotype male.* Body length 6.0 mm, wing length (distance between outer margin of tegula and wing tip) 5.8 mm.

Black, richly decorated with yellow markings and metasoma broadly carmine red. Lemon yellow are: subapical transverse band of posterior

pronotum, the band laterally turning forward along lateral margins of pronotum but not reaching frontal margin (Fig. 1); posterior 0.5 of scutellum, with anterior margin deeply incised (Fig. 3); subalar area of mesopleuron; apical 0.4 of outer surface of fore femur; fore tibia dorsally; apical 0.2 of mid femur; mid tibia entirely; large spots at baso-dorsal and apico-ventral parts of hind coxa; large lunar subbasal spot and large subapical spot on outer surface of hind femur (Fig. 5); large triangular mark on upper surface of hind tibia obliquely covering area from middle of dorsal surface to ventral apex (Fig. 5). Orange yellow are: large rectangular spot occupying posterior 0.8 of T2 and most of T3. Carmine red are: T4, T5 (both apical 0.3 orange-red); S3–S6 and very small round spot at median subapical part of T6. Dark brown are: lower margin of clypeus; apical 0.3 of mandible; tegulae; all tarsi; wing veins; anterior 0.2 of T2; S2. Wings, except for veins, uniformly pale brown.

Measurements of head: width (distance between outer margins of eyes) 70; length (distance between vertex and lower margin of clypeus) 55; length of longer axis of eye 40; distance between eyes at vertex 43; maximum distance between eyes (at about upper 0.3 of length of eye) 44; minimum distance between eyes (at about lower 0.25 of length of eye) 39.

Head densely and moderately strongly rugoso-punctate. Generally rugae stronger than punctures. Punctures at vertex much larger than those

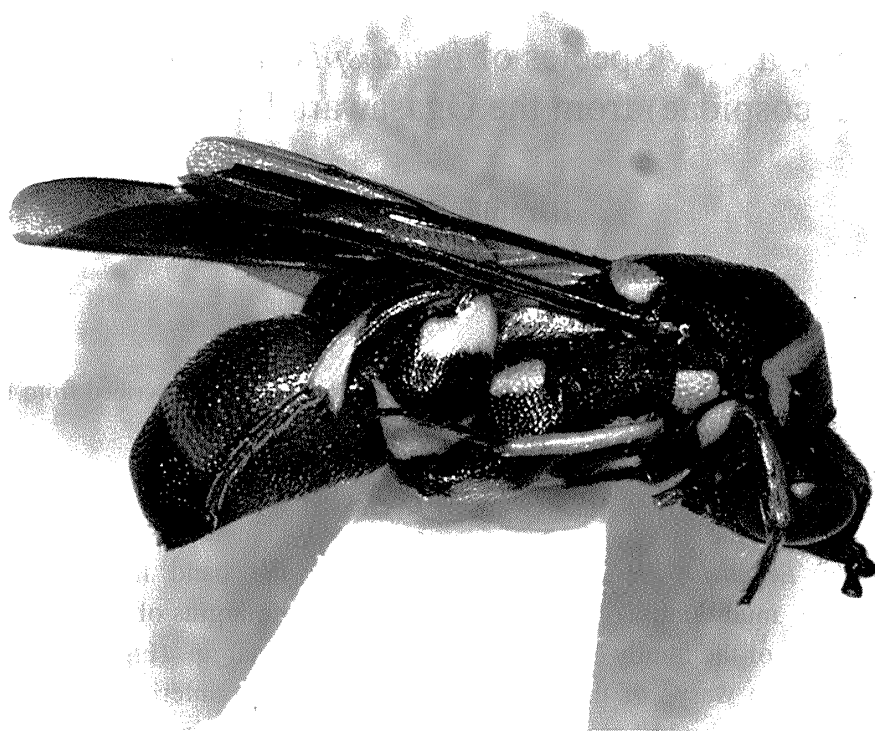


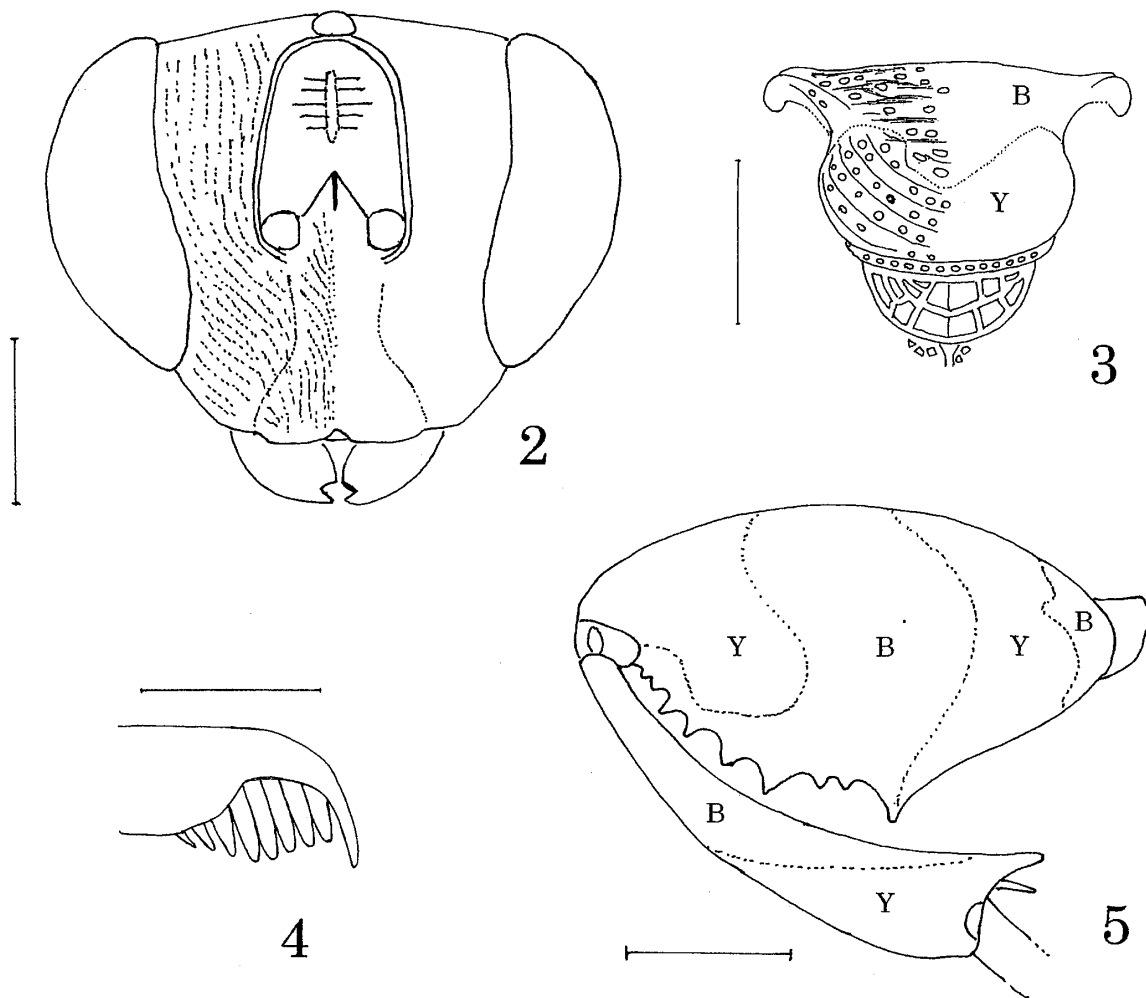
Fig. 1. *Leucospis pulcherrima* sp. nov., holotype, habitus.

on face. Rugae on face and gena more or less vertical as illustrated (Fig. 2). Surface of rugae smooth and polished. Median area of face (interantennal lobe, supraclypeal area and clypeus) weakly transversely convex for about width of interantennal distance. Pedicel longer than wide. Flagellar segment 1 about as long as wide. Interantennal distance about equal to length of malar space and slightly shorter than antenno-ocular distance. Antennal scrobes margined by strong carina, upper margin of which almost touching front ocellus. Inside of scrobes with strong transverse carinae, and with distinct vertical median keel. Lower margin of clypeus distinctly bilobed, with median tooth inconspicuous (Fig. 2). Space between first and second teeth of mandible triangular.

Inner margin of eye slightly emarginate at about upper 0.3 of eye length seen in front (Fig. 2). Post-ocellar distance about twice of diameter of lateral-ocellus, and slightly longer than ocello-ocular distance. Occipital carina distinct only behind lateral ocelli, and almost touching lateral ocelli. Ocellar triangle 22:9. Occiput polished and with numerous strong concentric rugae sur-

rounding foramen magnum.

Pronotal disc slightly converging anteriorly: measurements of anterior width 55; posterior width 60; median length 37. Pronotum dorsally strongly, transversely and irregularly rugose with medium sized punctures between rugae. Surface of rugae further covered with microscopic transverse wrinkles. Premarginal carina present, but not very strong and becoming obsolete near posterolateral corner of pronotum. Discal carina absent. Mesoscutum with similar sculptures as pronotum, but punctures slightly larger; without notauli, but with oblique vestiges of parapsidal furrows nearly as long as their distance from lateral margin. Scutellum anteriorly similarly sculptured as mesoscutum, but posteriorly rugae strongly curving forward and surface of rugae lacking fine wrinkles (Fig. 3). Axillae apically rounded. Dorsellum semicircular with distinct marginal carina, and very coarsely reticulate inside (Fig. 3). Mesopleuron covered with strong, large, dense punctures, with interspaces not forming rugae, smooth and polished. Punctures of subalar area slightly finer than those of mesopleuron. Propodeum coarsely reticulate with



Figs. 2–5. *Leucospis pulcherrima* sp. nov., holotype. —2, Head, frontal view; 3, scutellum and dorsellum; 4, left inner tarsal claw; 5, right hind femur and tibia (B: black area; Y: yellow area). Scale lines —Figs. 2, 3, 5: 0.5 mm; Fig. 4: 0.1 mm.

strong median carina; plicae converging toward petiolar area; hind margin with strong semicircular carina. Hind leg: coxa without special modification such as spines; dorsal margin anteriorly rounded, posteriorly narrowed and carinate; femur with basal tooth at about basal 0.4 of its length, followed by about 8 smaller teeth as illustrated (Fig. 5); tibia distinctly curved inward with a strong apicoventral spine ending in minute, sharply pointed outer tibial spur, and with inner tibial spur only slightly shorter than ventral spine (Fig. 5). Claws of fore- and mid-tarsi densely pectinate (Fig. 4), that of hind tarsus simple. Length of hind femur 65; maximum width of hind femur (including basal tooth) 41; length of hind tibia (straight-line length between base and apex of spine) 62; length of hind tarsus excluding

claw 50.

Metasomal targa forming carapace, but at least dorsoposterior margins of T2, T3 and lateral margin of T3 discernible by dark pigmented lines; posterior margins of T4 and T5 can only be recognized by difference of color. S3–S6 laterally carinate, lateral margins subparallel in S3 and S4, slightly converging posteriorly in S5 and S6. Lengths of S3–S6 18, 20, 25, 28, width of S3 20, apex of S5 13. Surfaces of S3 and S4 flat, those of S5, S6 and S7 medially weakly depressed. Metasomal terga covered with medium sized punctures, puncture interspaces in T4 and T5 dorsally 2–4 times and laterally 0.5 times of puncture diameter. Punctures on T6 much larger and denser.

Body hairs white, except for very sparse hairs

on occiput and dense tarsal hairs which are brown. Head except vertex with abundant, suberect hairs. Eyes with dense, short hairs. Mesosoma dorsally almost bare. Tergal hairs short, very sparse and suberect, sternal hairs much longer and denser. Legs with sparse hairs except for ventral surface of hind coxa and femur where hairs are somewhat denser; tarsal hairs dense.

*Female.* Unknown.

*Distribution.* The Ogasawara Islands (Hahajima Island), Japan.

*Host.* Unknown.

*Holotype.* Male. Labelled "Higashiko, Hahajima. Bonin. 5. vi. 1976, T. Nakano lgt.", "HOLOTYPE, *Leucospis pulcherrima* sp. nov., Det. H. Nagase 2006". Deposited in the collection of the National Museum of Nature and Science, Tokyo. The holotype lacks the second and following segments of flagellomeres of both antennae, the fourth and fifth segments of the right fore tarsus, and the whole left hind tarsus. The left middle leg is detached and glued to a paper triangle, and apex of the left fore wing is slightly damaged.

*Remarks.* In the key to Asiatic and Australian species of *Leucospis* by Boucek (1974), this species runs to the column 19 and runs out. But this species seems to belong to the *L. dorsigera* species group in Boucek's sense because of the following characters: hind coxa without a spine, its upper edge nearly straight and posteriorly carinate; basal tooth of hind femur the broadest, followed by about 8 narrower teeth; apical spine of hind tibia well developed with a minute outer spur at its apex.

This species exhibits striking resemblance in color pattern to the eumenid wasps, *Stenodynerus ogasawarensis* Sk. Yamane and Gusen-

leitner 1982 and *Pararrhynchium oceanicum* Sk. Yamane, 1990, both of which are endemic to the Ogasawaras and have a very characteristic color pattern among the Eumenidae species in Japan and adjacent areas. Species of *Leucospis* quite often show color mimicry to sympatrically occurring eumenid wasps as in this species, although the majority of their recorded hosts are bees rather than wasps (Boucek, 1974).

### Acknowledgements

I am much obliged to Dr. A. Shinohara of the National Museum of Nature and Science, Tokyo for his allowing to examine the holotype specimen and giving advice. I am also grateful to Dr. K. Kamijo of Bibai who kindly read through the draft of this paper critically.

### References

- Boucek, Z., 1974. A revision of the Leucospidae of the world. *Bulletin of the British Museum (Natural History)*, Entomology (Supplement), **23**: 1–291.
- Habu, A., 1962. *Fauna Japonica. Chalcididae, Leucospididae and Podagrionidae (Insecta: Hymenoptera)*. 10+232 pp.+19 pls., Biogeographical Society of Japan, Tokyo.
- Habu, A., 1977. A new *Leucospis* species from the Ryukyus, Japan. *Entomological Review of Japan*, **30**(1/2): 47–51.
- Yamagishi, K., 1989. Leucospididae. In: Hirashima, Y. (ed. supervisor), *A Check List of Japanese Insects*. p. 621. Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka. (In Japanese.)
- Yamane, Sk., 1990. A revision of the Japanese Eumenidae. *Insecta Matsumurana (New Series)*, **43**: 1–189.
- Yamane, Sk. and F. Gusenleitner, 1982. Die *Stenodynerus*-Arten Japans. *Report of the Faculty of Science, Kagoshima University (Earth Science and Biology)*, **15**: 113–127.